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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/615,883	07/14/2000	Hiromichi Ohta	10110-3	6778

7590

05/20/2002

Vincent O Wagner Esq
Woodard Emhardt Naughton Moriarty & McNett
Bank One Center Tower
111 Monument Circle Suite 3700
Indianapolis, IN 46204-5137

EXAMINER

MCNEIL, JENNIFER C

ART UNIT

PAPER NUMBER

1775

10

DATE MAILED: 05/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

72-10

Office Action Summary

Applicati n N .

09/615,883

Applicant(s)

OHTA ET AL.

Examin r

Jennifer McNeil

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-- The MAILING DATE of this communication appears n th c ver sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 1-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 17 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an ITO film deposited on a substrate and having the claimed characteristics, does not reasonably provide enablement for a self-supporting ITO film having the claimed characteristics. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. The specification teaches that the characteristics of the ITO film are dependent upon the surface onto which it is deposited. The ITO film is deposited specifically onto a crystalline substrate to achieve these characteristics and this substrate is therefore essential and necessary to the invention. There is no enablement for making an ITO film having these characteristics without the use of a crystalline substrate (see pages 5, and 7-8 of the instant specification).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 18 refers to an ITO film deposited on a substrate having a temperature of 500-1000 degrees Celsius. Is this referring to the temperature of the substrate, the film, or the material as it is deposited? Please clarify.

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Claims 27 and 28 recite the limitation "said crystalline substrate" in lines 2-3, and line 3, respectively. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17, 18, 19, 22, 23, 26, 27, 29, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Nath et al (Thin Solid Films, 1980). Nath et al teach ITO film with an electrical resistivity of 7×10^{-5} ohms-cm. The film is deposited on a quartz substrate (page 464). While Nath et al do not specifically discuss the activity of Sn in the film or its structure, it is expected that since these characteristics would be inherent to the film since it exhibits the claimed resistivity. Quartz is a crystalline substrate. With regard to claims 18, and 19, the method of producing the film does not provide structural limitation and does not provide patentable distinction over the prior art of record.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20, 21, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nath et al (Thin Solid Films, 1980) in view of Kodan et al (US 5,539,546). Nath et al teach an ITO

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film deposited on glass or quartz as discussed above, but do not teach deposition in a pattern.

Koden et al teach an ITO film formed on a glass substrate patterned into a striped configuration to form electrodes. As it is taught by Koden et al that it is known to pattern the ITO films formed on glass substrates, it would have been obvious to one of ordinary skill in the art at the time of the invention to form a pattern in the ITO film of Nath et al.

Claims 28, and 31-33 are is rejected under 35 U.S.C. 103(a) as being unpatentable over Nath et al in view of Kwok et al (Thin Solid Films, November 1998). Nath et al teach ITO films on quartz substrates as discussed above, but do not teach additional substrates upon which the coating may be formed. Kwok et al teach that ITO films are formed well on (100) YSZ substrates, especially for forming crystalline ITO (column 2). As it is taught by Kwok et al that a crystalline YSZ substrate is advantageous for forming crystalline ITO films, it would have been obvious to one of ordinary skill in the art to form the crystalline ITO film of Nath on a (100) YSZ substrate.

With regard to claims 31-33, Kwok et al teach the deposition of the ITO film by pulsed laser deposition. Regarding the temperature range, Kwok et al teach deposition in the range of 420 degrees Celsius. It would have been obvious to one having ordinary skill in the art at the time the invention was made optimize the temperature range at which the film is formed since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (In re Aller, 105 USPQ 233).

Response to Arguments

Applicant's arguments with respect to claims 17-33 have been considered but are moot in view of the new ground(s) of rejection.

Concerning the 112 first paragraph rejection of claim 17, please see the arguments above.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer McNeil whose telephone number is 703-305-0553. The examiner can normally be reached on Monday through Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 703-308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



JCM
May 16, 2002

Jennifer McNeil
Examiner
Art Unit 1775


DEBORAH JONES

SUPERVISORY PATENT EXAMINER